

Work Order ID 143448

Monday, March 21, 2016 8:13:32 AM

143448

Page 1

Item ID: D4772-1

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Wearplate

Start Date: 4/8/2016 Start Qty: 4.00

4

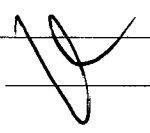
Cust Item ID:

Required Date: 4/22/2016 Req'd Qty: 4.00

4

Customer:

Reference:

Approvals: Process Plan:  Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D4772	B								

105

0.00

105

Purchasing

Memo

0.00

Purchasing

ISSUE PO 31764

CUT PER DRWG D4772 REV.B

4MAR 21 2016DAS
13
9-09

115

Receive & Inspect for Damage & Mat'l Certs

0.00

115

Packaging

Memo

0.00

Packaging

4KSP 16-04-7

125

QC5- Inspect part completeness to step on W/O

0.00

125

QC

Memo

0.00

Quality Control

(4)16-04-15 PD

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																											
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval																																																							
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																																																							
Root Cause		FAULT CATEGORY																																																													
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____	
Misidentified ☐	Past Due ☐																																																														

1 43448

Monday, March 21, 2016 8:13:32 AM

N900040100

Setup Start *NS1*

Stop *NS2*

Stop *NS2*

Start Date: 4/8/2016 **Start Qty:** 4.00 ***4***

Cust Item ID:

Required Date: 4/22/2016 Req'd Qty: 4.00 *4*

Customer:

Reference:

Run Start *NR1*

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Stop *NR2*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

[illegible]

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval	
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐		Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	
		OTHER : ☐							

Monday, March 21, 2016 8:13:32 AM

143448

Page 3

N900040100

Setup Start *NS1*

Stop *NS2*

Stop *NS2*

Start Date: 4/8/2016 **Start Qty:** 4.00 ***4***

Cust Item ID:

Required Date: 4/22/2016 **Req'd Qty:** 4.00 ***/***

Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/
Work Center ID

Operation Description

Set Up/ Run Hours

Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
---------	--------	-----------	------------	------------	---------------	-------------

160

QC21- Final Inspection - Work Order Release

0.00

160

QC

Memo

0.00

Quality Control

SH 7/7/16

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :	MRB (QSI042) Approval		
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : ☐					

Picklist Print

Monday, March 21, 2016 8:13:31 AM

Page 1
7

Work Order ID: 143448

143448

Parent Item: D4772-1

D4772-1

Parent Item Name: Wearplate

Start Date: 4/8/2016

Required Date: 4/22/2016

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP REV:A 13.03.27 NEW ISSUE DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D4771-1P		Purchased	No				Each	0.0000		4			
D4771-1P									**				
Wearplate													
M304S18GA		Purchased	No				sf	269.4960		8.694737			
M304S18GA									**				
304/316 .050 Sheet													

4X SPL-04-7
DAS
13
9-89
APR 01 2016

Location	Loc Qty	Loc Code
MAT020	269.496	
M133328	171.996	
M133587	97.5	

m134604

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

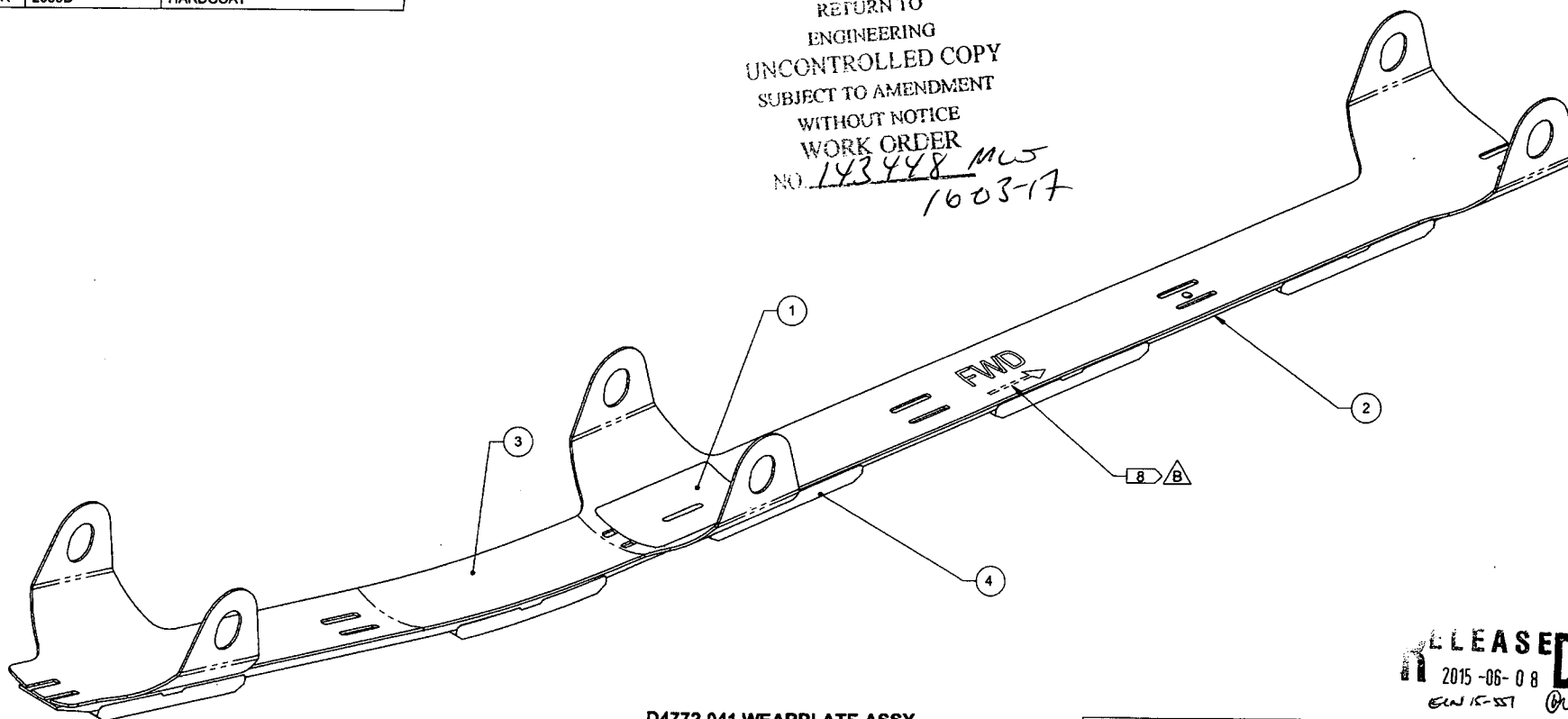
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

ITEM	QTY -041	P/N	DESCRIPTION
	X	D4772-041	WEARPLATE ASSY
1	1	D4682-9	WEARPLATE SHIM
2	2	D4770-3	BAR
3	1	D4772-1	WEARPLATE
4	A/R	2059B	HARDCOAT

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 143448 ML5
1603-17



D4772-041 WEARPLATE ASSY

NOTES:

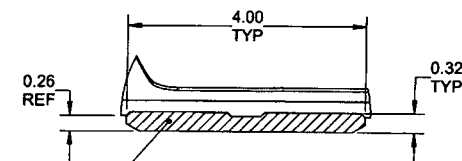
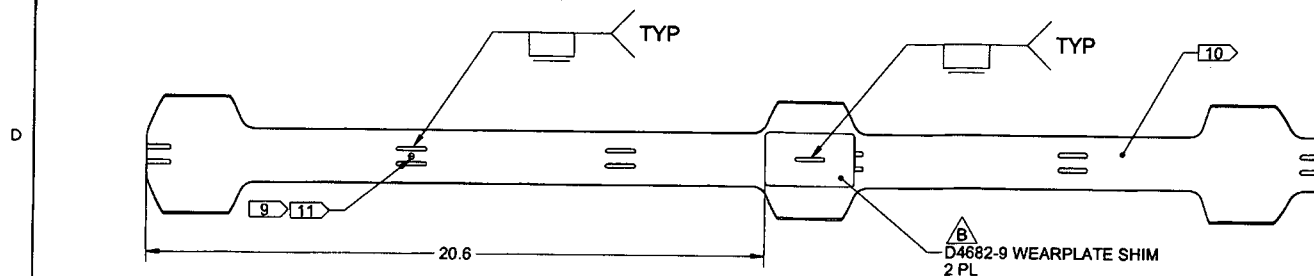
- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 METHOD 6.1
- 7) WEIGHT: 4.51 lbs
- 8) INDICATE FWD DIRECTION IN LOCATION SHOWN USING WHITE PAINT MARKER

RELEASED
2015-06-08
EIN 15-557

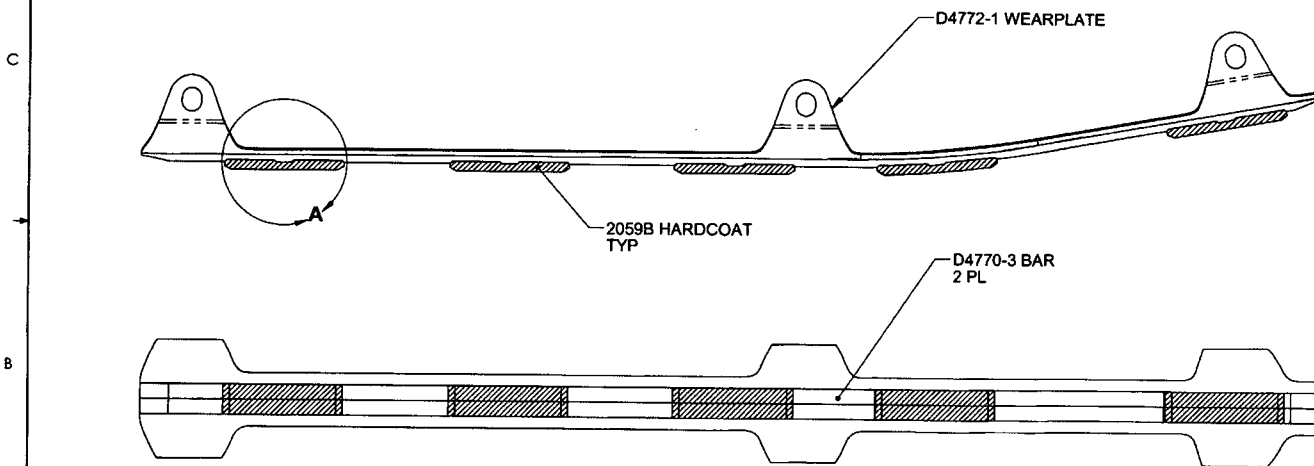
B	WEARPLATE FORMING MODIFIED TO ACCOMMODATE MATERIAL SPRING BACK, TEXTURED COATING WAS ROCKGUARD, D4682-9 WAS D4682-3, SHIM REMOVED FROM AFT END OF D4772-041, REDUCED HARDCOAT DENSITY, MINOR DIMENSIONAL CHANGES	AP	15.04.01
A	NEW ISSUE	AP	13.02.13
REV.	DESCRIPTION	BY	DATE
DESIGN	AP	DART AEROSPACE USA, INC. KENT, WA	
DRAWN	AP		
CHECKED	AJS	DRAWING NO.	REV. B
MFG. APPR.	DD	D4772	SHEET 1 OF 4
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	WEARPLATE ASSY	NTS
DATE	15.04.01	COPYRIGHT © 2013 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

APPROVED

8 7 6 5 4 3 2 1



DETAIL A
SCALE 2X
10 PL



D4772-041 WEARPLATE ASSY

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 METHOD 6.1
- 7) WEIGHT: 4.51 lbs
- 8) WELDING: PER QSI 004. 2059B HARDCOAT WELD, 0.32 THICK X 0.50 WIDE, FLUSH WITH D4770-3 BAR ON LATERAL SURFACES, 10 PL
- 9) TRANSFER DRILL $\phi 0.188$ HOLE FROM D4772-1 WEARPLATE TO D4770-3 BAR
- 10) COAT ENTIRE TOP (CONCAVE) SURFACE WITH TEXTURED COATING, 0.020 - 0.040 THICK, PER QSI 005 SECTION 4.9
- 11) OPEN UP DRAIN HOLE IF NECESSARY TO $\phi 0.188$ AFTER APPLYING TEXTURED COATING

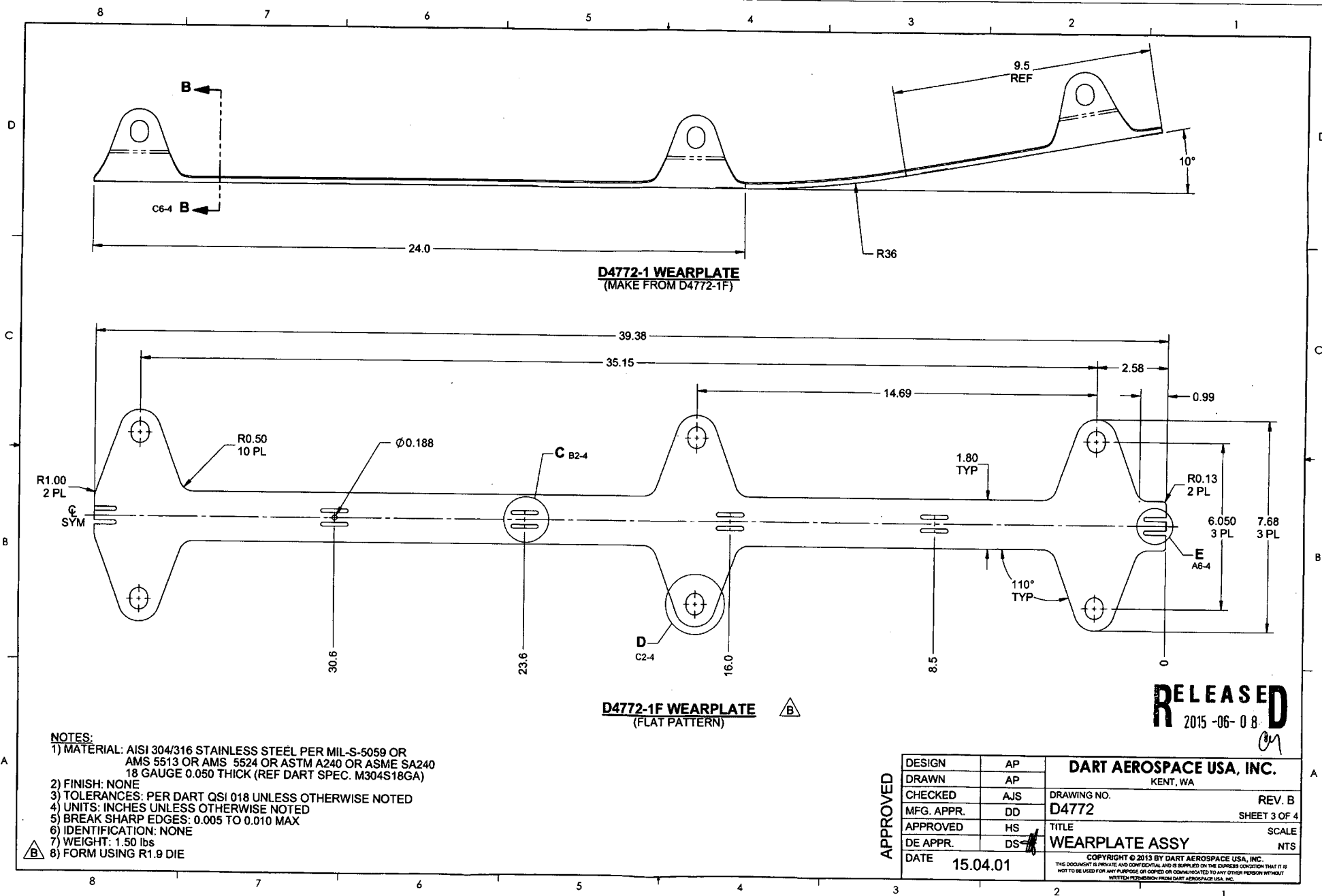


RELEASED
2015-06-08

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DESIGN	AP	DART AEROSPACE USA, INC.	
DRAWN	AP	KENT, WA	
CHECKED	AJS	DRAWING NO.	REV. B
MFG. APPR.	DD	D4772	SHEET 2 OF 4
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	WEARPLATE ASSY	NTS
DATE	15.04.01	COPYRIGHT © 2013 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

8 7 6 5 4 3 2 1

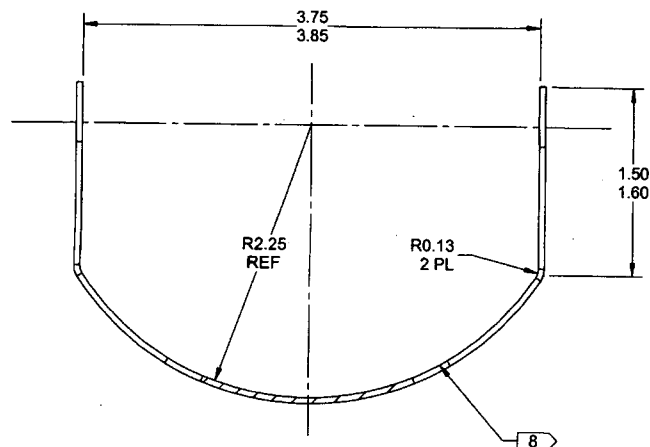


NOTES:

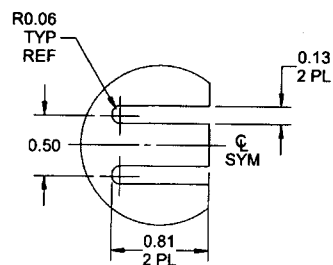
- 1) MATERIAL: AISI 304/316 STAINLESS STEEL PER MIL-S-5059 OR AMS 5513 OR AMS 5524 OR ASTM A240 OR ASME SA240 18 GAUGE 0.050 THICK (REF DART SPEC. M304S18GA)
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 1.50 lbs
- 8) FORM USING R1.9 DIE

APPROVED

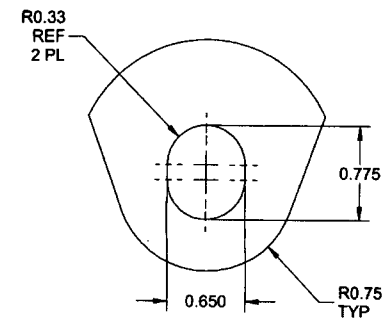
DESIGN	AP	DART AEROSPACE USA, INC. KENT, WA	
DRAWN	AP		
CHECKED	AJS	DRAWING NO.	REV. B
MFG. APPR.	DD	D4772	SHEET 3 OF 4
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	WEARPLATE ASSY	NTS
DATE	15.04.01	COPYRIGHT © 2013 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	



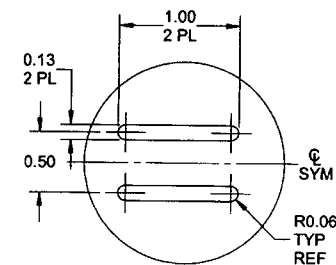
SECTION B-B D7-3
SCALE 3X



DETAIL E B1-3
SCALE 3X
2 PL



DETAIL D B5-3
SCALE 3X
6 PL



DETAIL C B5-3
SCALE 3X
4 PL

RELEASED
2015-06-08

APPROVED

DESIGN	AP	DART AEROSPACE USA, INC. KENT, WA	
DRAWN	AP		
CHECKED	AJS	DRAWING NO.	REV. B
MFG. APPR.	DD	D4772	SHEET 4 OF 4
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	WEARPLATE ASSY	NTS
DATE	15.04.01	COPYRIGHT © 2013 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO31764

Purchase Order Date 3/21/2016

PO Print Date 3/21/2016

Page Number 4 of 11

Order From :

VC-TPI001

TPI INDUSTRIES INC.
148 RUE GOODFELLOW
DELSON, QUEBEC J5B 1V4
CANADA

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name
Vendor Phone 450-633-0484

Ship To Contact
Ship To Phone
Ship Via:
Ship Acct:

Buyer Chantal Lavoie
Customer POID
Customer Tax # 10127-2607
Terms Net 30
Currency CAD
FOB Destination-Collect

Line Total: \$109.20

9 D4771-IP Wearplate 4/6/2016 4.00
Yes Each
4/6/2016

CUT AS PER DWG D4771 REV. C
B143412
MATERIAL 304 SHEET 18 GA

\$23.75 \$95.00

Line Total: \$95.00

10 D4772-IP Wearplate 4/6/2016 4.00
Yes Each
4/6/2016

CUT AS PER DWG D4772 REV. B
B143448
MATERIAL 304 SHEET 18 GA

\$17.85 \$71.40

Line Total: \$71.40

Sp/6-04-7

Note:

3/21/2016

T.P.I. INDUSTRIES INC.

148 GOODFELLOW
DELSON, QUÉBEC J5B 1V4
CANADA
Tel: (450) 633-0484
Fax: (450) 633-0879

Packing Slip

Packing Slip No.: 7443
Date: 2016-04-05
Page: 1

Sold to: Dart Aerospace Chantal Lavoie 1270 Aberdeen Hawkesbury, Ontario K6A 1K7 Canada	Ship to: Dart Aerospace Chantal Lavoie 1270 Aberdeen Hawkesbury, Ontario K6A 1K7 Canada
Order No.: 31764	Sold By: JONATHAN LESSARD
Shipped By:	Ship Date: 2016-04-05
Tracking No.:	

Item No.	Unit	Description	Quantity
d3805-1	Chaque	d3805-1 plate	8
d4154-1	Chaque	d4154-1 plate	8
d4406-3	Chaque	d4406-3 plate	4
d4771-1	Chaque	d4771-1 wearplate	4
d4772-1	Chaque	d4772-1 wearplate	4
d4773-1	Chaque	d4773-1 wearplate	4
d5152-1	Chaque	d5152-1 fwd post mount	28
Sp/16-04-7			
Comment: Net / 30 from date of invoice 2% svc. chg. on invoices over 30 days			

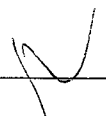
THYSSENKRUPP MATERIALS NA

DART AEROSPACE

STAINLESS STEEL SHEET 304L-2B DUAL GRADE
".0480 Nom X 48.0000" X 96.0000"
PART NO.

PO/Rel 31741

We certify that this is a true copy of the report
furnished by the producer of the metal, or data
resulting from tests made in approved labs.

Signed by: 

Certificate of Mill Test Results

BL PEC-983229-004

21Mar16

Pg 1/1



METALLURGICAL TEST REPORT

North American Stainless Canada Inc.
740 Imperial Road North
Guelph, ON N1K1Z3
Canada

740 Imperial Road North

Certificate: 121787 1 Mail To:
THYSSENKRUPP MATERIALS
Customer: 007206 001 2821 LANGSTAFF ROAD
CONCORD, ON L4K5C6

Ship To:
THYSSENKRUPP MATERIALS
2821 LANGSTAFF ROAD
CONCORD, ON L4K5C6

Date: 12/08/2015 Page: 1

Steel: 304/304L

Finish: 2B

Corrosion: ASTM A262/14;18 OBend-OK

Your Order: PEC271093

NAS Order: WN 0072789 01

PRODUCT DESCRIPTION:

STAINLESS STEEL COIL, C.R. ANNEALED & PICKLED. UNS 30400/30403
ASTM A240/15a,A480/14b,A666/15;ASME SA240/13,SA480/13,SA666/13
CHEM ONLY ON FOLLOWING ASTM: A276/13,A479/13a,A484/13a,A312/13
CHEM ONLY ON FOLLOWING ASME: SA312/13,SA479/13
AMS 5511H/5513J XMRK; MIL-5059D AMD3(X CRN MEAS); MIL-4043B
NACE MR0175/ISO 15156-3:2009 A, MR0103/07;QSS766D-A X MAG PERM
MIN. SOLUTION ANNEAL TEMP 1900F, WATER QUENCHED

REMARKS:

Mat'l is Free of Mercury Contamination. No weld repairs.
EN 10204:2004 3.1; RoHS 1 & 2 Compliant
Material is Free of Radioactive Contamination
Steel Making Process: EAF, AOD, & Cont. Casting
Product Mfg.by a Quality Mgt.Sys. in Conf. w/ISO 9001
*Melted & Manufactured in the USA; Mat'l is DFARS Compliant

Product Id	Coil #	Skid #	Thickness	Width	Weight	-----Length-----	Mark	Pieces	Commodity Code
05X0L3 AA	05X0L3 A		.0460	48.0000	5.060	SHEETS	096.00	81	

Lab Accreditation Bureau, ISO/IEC 17025, Certificate# L2323

CHEMICAL ANALYSIS CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan) Chemical Analysis per ASTM A751/08

HEAT	CM	C %	CR %	CU %	MN %	MO %	N %	NI %	P %	S %
X0L3	US	.0214	18.0480	.4390	1.8095	.3690	.0812	8.0010	.0330	.0010
SI %										
.2980										

MECHANICAL PROPERTIES

Product Id#	Coil #	1 d o i c r	UTS KSI	20C .2% YS KSI	20C ELONG %-2"	% Hard RB	Tail Hard
05X0L3 AA	05X0L3 A	F T	99.26	53.12	48.68	88.00	87.00

NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy of the test methods used, the material meets the specifications stated. These results relate only to the items tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS.

Technical
Dept. Mgr. 